

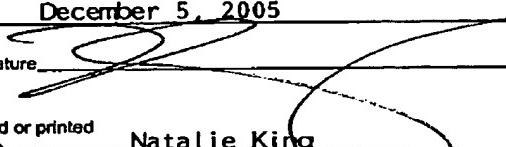
Doc Code: AP.PRE.REQ

PTO/SB/33 (07-05)

Approved for use through 10/31/200x. OMB 0651-00xx

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PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional) MI22-1637
I hereby certify that this correspondence is being transmitted via facsimile to 571-273-8300 to the attention of Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 [37 CFR 1.8(a)] on <u>December 5, 2005</u> Signature 	Application Number 09/834,660	Filed April 12, 2001
First Named Inventor Luan C. Tran		
Art Unit 2813	Examiner L. Schillinger	
Typed or printed name <u>Natalie King</u>		

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

applicant/inventor.

assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/98)

attorney or agent of record. Registration number 39,833

attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____



Signature

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12/5/05

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.
Submit multiple forms if more than one signature is required, see below*.

*Total of 1 forms are submitted.

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No. 09/834,660
Filing Date April 12, 2001
Inventor..... Luan C. Tran
Assignee Micron Technology, Inc.
Group Art Unit..... 2813
Examiner L. Schillinger
Attorney's Docket No. MI22-1637
Customer No. 021567
Title: Semiconductor Processing Methods

PRE-APPEAL BRIEF

To: Mail Stop Appeals - Patents
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Sir:

The pending claims stand rejected under 102 over U.S. Patent No. 5,960,276 to Liaw (hereinafter "Liaw"). Liaw fails to provide an enabling disclosure at least with respect to the teachings relied upon in support of the 102 rejection and accordingly the anticipation rejection of the claims over Liaw is improper. In particular, the teachings of the table in col. 4 and Fig. 4 of Liaw are identified as allegedly teaching limitations of the claims concerning the active area widths and the respective relationships with threshold voltages. However, specific explicit teachings of Liaw concerning "channel length" and "channel width" are directly contradictory with one another. Applicant respectfully submits this contradiction precludes the public from being in possession of the limitations of Applicant's claims based upon Liaw before Applicant's filing date and the claims are allowable for at least this reason.

Applicants note the requirements of MPEP §2121.01 (8th ed., rev. 3). This MPEP section states that in determining that quantum of prior art disclosure which is necessary to declare an applicant's invention 'not novel' or 'anticipated' within section 102, the stated test is whether a reference contains an 'enabling disclosure'. A reference contains an "enabling disclosure" if the public was in possession of the

claimed invention before the date of invention. MPEP 2121.01

The contradiction of the Liaw teachings concerning channel width and channel length is evident by the reference in Liaw to *different dimensions using the same terms*. More specifically, at col. 3, lines 20+ of Liaw, it is stated that reference 12N of Liaw is a channel width (and corresponding to an X axis direction in the corresponding plan view of Fig. 3B). However, with reference to Fig. 3B and col. 4, lines 5+, Liaw sets forth a *directly contrary definition of channel width* by stating that reference 42 (a dimension in the Y axis direction) is the channel width. In no fair interpretation may the directly contrary teachings of "channel width" to both the X and Y axes dimensions at different portions of the same disclosure be considered to provide the public with "possession" of the claimed subject matter. More specifically, if the teachings of Liaw regarding channel width are interpreted in accordance with at least one explicit portion of the disclosure of Liaw, the reference does not disclose limitations of the pending claims. For example, if the interpretation of channel width is defined as corresponding to reference 42 as defined in col. 4, lines 1+ as a Y axis dimension, then the teachings of Table and Fig. 4 fail to teach voltage thresholds increasing with active area widths as defined in the claims (e.g., in such an interpretation the dimension "L" would be the X axis dimension and it is clear that for common channel widths, the larger dimension "L" has a smaller voltage threshold than the smaller dimension "L" regardless of whether the Boron implant is provided or not as indicated by "w/i imp" or "w/o imp").

Applicants request withdrawal of the 102 rejections over Liaw and allowance of the claims for at least the above-mentioned compelling reasons.

Referring to claim 21, the method recites the one series being formed to have active area widths less than one micron to achieve lower threshold voltages than the other of the series having active area widths greater than one micron. The Liaw reference teachings regarding at least this limitation are ambiguous as set forth above and the Office has failed to establish a proper anticipation rejection and claim 21 is allowable.

Referring to claim 22, Liaw fails to teach or suggest the threshold voltages for the two series of field effect transistors are defined by a *common channel implant* and claim 22 is allowable for at least this reason. The teachings in col. 3, lines 30-45 of Liaw relied upon by the Office are concerned with *implanting Boron into the trenches* (as indicated by reference 44 of Fig. 2) of the NMOS and Liaw is void of teaching that Boron is implanted into the active areas 12N or 12W and accordingly fails to disclose or suggest the *common channel implant*. As set forth in col. 1, lines 42+ of Liaw, the Boron implant

is performed to reduce and control the NMOS reverse narrow width effect in narrow active areas. Furthermore, barrier layer 22 is provided over the active areas of Liaw during the implanting of Boron. The implanting of Boron into the trenches may not be fairly interpreted to disclose or suggest the claimed common channel implant. The teachings of Liaw fail to disclose the limitations of claim 22.

Referring to claim 23, and as mentioned above, the Boron implant is implanted into the trenches and fails to disclose the claimed common channel implant and claim 23 is allowable for at least this reason. In addition, Applicants have failed to uncover teachings in Liaw as to how the threshold voltages of the transistors are defined let alone the specifically claimed use of a common channel implant. Liaw is concerned with implanting of Boron to reduce and control NMOS reverse narrow width effect in narrow active areas. Liaw does not disclose how the voltage thresholds are defined in the first instance but merely refers to reduction and control of the reverse narrow width effect problem using the Boron. Even if Boron is considered to disclose a channel implant (contrary to the explicit teachings of Liaw) there is *no evidence of record* to support a position that the *implanting of Boron is the only channel implant which defines the threshold voltages*. Claim 23 is allowable for this additional reason.

Further with respect to dependent claim 23, Applicant notes the table and Fig. 4 of Liaw and submits regardless of whether L or channel width is read to correspond to Applicant's active area widths, the only teachings of decreasing V_{th} relative to decreasing channel width are for the triangles and squares *not having the Boron implant* and accordingly fail to disclose the limitations of claim 23 which defines the common channel implant.

Referring to claim 63, Applicants have failed to uncover any teachings in the prior art of performing a common channel implant into active areas of the transistors of the two series at the same moment in time.

Referring to claim 64, the implanting of Boron into the trenches fails to disclose or suggest the common channel implant into the active areas of the transistors of the transistors of the two series. Claim 64 is allowable for this additional reason.

Referring to claim 65, there is no evidence of record that Boron in the *only channel implant* which defines the different threshold voltages of the transistors of the two series. Claim 65 is allowable for this additional reason.

Referring to claim 66, Liaw fails to disclose or suggest the *implanting of the impurity into the active areas of the transistors as claimed*. Claim 66 is allowable.

Referring to claim 67, Applicants have failed to uncover any teachings in the prior

art of implanting an impurity into active areas of the transistors of the two series at the same moment in time to simultaneously define the different threshold voltages of the transistors of the two series.

Referring to claim 81, the conflicting teachings of channel widths of Liaw corresponding to both the X and Y axes directions in different portions of Liaw renders the reference ambiguous and fails to teach or suggest the specifically defined widths as being dimensions between plural shallow trench isolation regions. Liaw fails to provide an enabling disclosure with respect to the limitations of claim 81 read in conjunction with the limitations of the respective independent claim 21 and claim 81 is allowable for at least this reason.

Referring to claim 26, Liaw is not enabled with respect to disclosing the *first series of transistors having the active area widths less than the active areas widths of the second series of transistors and the threshold voltages of the transistors of the first series are less than the threshold voltages of the transistors of the second series*. More specifically, the teachings regarding the relationship of threshold voltages with respect to channel widths are conflicting in Liaw and one of skill in the art cannot be considered to be in possession of the subject matter of such teachings in view of the contradiction. Applicants respectfully submit that the anticipation rejection is improper for at least this reason.

In addition with respect to claim 26, apart from a cursory statement that Boron has the effect of increasing voltage thresholds of the transistors in col. 4, Applicant has failed to uncover any teachings in Liaw regarding how the threshold voltages are defined. Specifically, Applicant has failed to uncover teachings in Liaw regarding *achieving different threshold voltages by varying the active area widths*. In addition, Fig. 4 of Liaw merely reflects the results of what the threshold voltages are and does not teach how the **threshold voltages are achieved**, let alone the specifically claimed achieving different threshold voltages by varying the active area widths as defined by Applicant in claim 26.

Referring to page 9 of the Action, the Office states that when Boron is implanted into the channels it modifies the threshold voltage and defines the series of FETs. However, Applicant has failed to uncover any teachings in Liaw of implanting Boron into channels.

Furthermore, Applicant respectfully submits that claims 27, 28, 74, 75, 76, 77 and 82 which include limitations of claims 22, 23, 64, 65, 66, 67 and 81, respectively, are allowable for at least the reasons set forth above.

Referring to the "constructive election" set forth on page 2 of the Office Action, Applicants respectfully traverse the election/restriction and allegation that Applicants have constructively elected any claims. 37 CFR 1.145 states that restriction is proper if the applicant presents claims directed to an invention distinct from and independent of the invention previously claimed. Applicants added new dependent claims 83-104 by amendment. The dependent claims *depend from and recite further limitations* in addition to those recited in the independent claims. The recitation of additional limitations in the dependent claims further defines the invention defined by the independent claims and such *further definition in the dependent claims have not been demonstrated to be "distinct from and independent of" the inventions defined by the independent claims as required for a proper restriction.* Furthermore, the Office has not complied with MPEP §806.04(f) (8th ed., rev. 3) which states that a requirement for restriction may be proper if the species are mutually exclusive and the claims do not recite limitations which are mutually exclusive from the claims elected by the Office. Applicants submit that the claims 83-104 added by amendment have not been demonstrated by the Office to be directed to a patentably distinct species as baldly alleged on page 2 of the Action. The Office has not met the burden imposed by MPEP §806.05 (8th ed., rev. 3).

Further, there is no support for the rational on page 2 of the Office denying Applicant the opportunity to elect the claims desired for prosecution in the event that restriction is proper. If restriction/election is still deemed proper (although improper for the reasons stated herein) Applicants request the opportunity to elect the claims pursuant to MPEP 821.03 and 37 CRF 1.145 which both provide that applicant will be required to restrict the claims.

Appellants respectfully request reconsideration of at least the above-identified claim rejections and allowance of the respective claims.

Respectfully submitted,

12/5/05
Date



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